

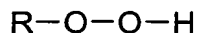
CLAIMS

1. A polymer latex, prepared using a sulfur-free and halogen-free chain transfer agent and comprising, in polymerized form:

- a) from 10% to 80% by weight of one or more monovinylaromatic monomers;
- b) from 0% to 70% by weight of one or more conjugated diene monomers;
- c) from 0 % to 70% by weight of one or more acrylate monomers; and
- d) a remainder of one or more other copolymerizable comonomers, with the condition that a sum of the percentages by weight of components b) and c) is greater than zero,

wherein said chain transfer agent is at least one peroxide selected from the group consisting of compounds of formulae A) to F)

A) hydroperoxides of the formula



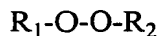
wherein R is H or one of the following radicals:

linear or branched $C_1 - C_{16}$ alkyl,

linear or branched $C_1 - C_{16}$ alkyl in combination with $C_1 - C_{18}$ aryl, or

$C_1 - C_{18}$ aryl;

B) peroxides of the formula



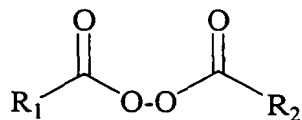
wherein R_1 and R_2 are identical or different and are one of the following radicals:

linear or branched $C_1 - C_{16}$ alkyl,

linear or branched $C_1 - C_{16}$ alkyl in combination with $C_1 - C_{18}$ aryl, or

$C_1 - C_{18}$ aryl;

C) peroxides of the formula



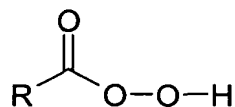
wherein R_1 and R_2 are identical or different and are one of the following radicals:

linear or branched $\text{C}_1 - \text{C}_{16}$ alkyl,

linear or branched $\text{C}_1 - \text{C}_{16}$ alkyl in combination with $\text{C}_1 - \text{C}_{18}$ aryl, or

$\text{C}_1 - \text{C}_{18}$ aryl;

D) peroxocarboxylic acids of the formula



wherein

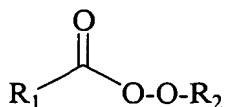
R is H or one of the following radicals:

linear or branched $\text{C}_1 - \text{C}_{16}$ alkyl,

linear or branched $\text{C}_1 - \text{C}_{16}$ alkyl in combination with $\text{C}_1 - \text{C}_{18}$ aryl, or

$\text{C}_1 - \text{C}_{18}$ aryl;

E) peroxocarboxylic esters of the formula



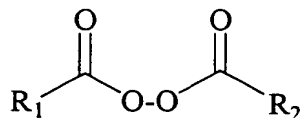
wherein R_1 and R_2 are identical or different and are one of the following radicals:

linear or branched $\text{C}_1 - \text{C}_{16}$ alkyl,

linear or branched $\text{C}_1 - \text{C}_{16}$ alkyl in combination with $\text{C}_1 - \text{C}_{18}$ aryl, or

$\text{C}_1 - \text{C}_{18}$ aryl; and

F) peroxodicarbonates of the formula



wherein R₁ and R₂ are identical or different and are one of the following radicals:

linear or branched C₁ – C₁₆ alkyl,

linear or branched C₁ – C₁₆ alkyl in combination with C₁ – C₁₈ aryl, or

C₁ – C₁₈ aryl; and

wherein said polymer latex has a glass transition temperature of from -30°C to 70°C.

2. The polymer latex as claimed in claim 1, wherein said chain transfer agent is at least one peroxide selected from the group consisting of said hydroperoxides.

3. The polymer latex as claimed in claim 2, wherein said peroxide is selected from the group consisting of tert-butyl hydroperoxide, cumyl hydroperoxide and mixtures thereof.

4. The polymer latex as claimed in claim 1, wherein said peroxide is selected from the group consisting of di-tert-butyl peroxide, tert-butyl peroxybenzoate and tert-butyl peroxy-3,5,5-trimethylhexanoate.

5. The polymer latex as claimed in claim 1, wherein component a) is styrene, component b) is butadiene and component c) is an ethylenically unsaturated carboxylic acid.

6. The polymer latex as claimed in claim 1, comprising in polymerized form: styrene, butadiene, acrylic acid.

7. The polymer latex as claimed in claim 1, comprising 1 to 20% by weight of component c) which is a nitrile monomer alone or a mixture of nitrile monomers.

8. The polymer latex as claimed in claim 7, wherein said nitrile monomer is acrylonitrile.

9. The polymer latex as claimed in claim 1, comprising in polymerized form: styrene, butadiene, acrylonitrile, acrylic acid.

10. A composition for the coating of paper and/or cardboard, comprising:
the polymer latex according to claim 1.

11. The composition as claimed in claim 10, wherein said peroxide is selected from the group consisting of said hydroperoxides.

12. The composition as claimed in claim 10, wherein said peroxide is selected from the group consisting of tert-butyl hydroperoxide, cumyl hydroperoxide and mixtures thereof.

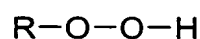
13. The composition as claimed in claim 10, wherein said peroxide is selected from the group consisting of di-tert-butyl peroxide, tert-butyl peroxybenzoate and tert-butyl peroxy-3,5,5-trimethylhexanoate.

14. A process for the preparation of a polymer latex, comprising:
reacting

- a) from 10% to 80% by weight of one or more monovinylaromatic monomers;
- b) from 0% to 70% by weight of one or more conjugated diene monomers;
- c) from 0 % to 70% by weight of one or more acrylate monomers; and
- d) a remainder of one or more other copolymerizable comonomers, with the condition that a sum of the percentages by weight of components b) and c) is greater than zero, in the presence of a sulfur-free and halogen-free chain transfer agent, to obtain a polymer latex having a glass transition temperature of from -30 to 70°C;

wherein said chain transfer agent is at least one peroxide selected from the group consisting of compounds of formulae A) to F)

A) hydroperoxides of the formula



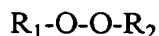
wherein R is H or one of the following radicals:

linear or branched $C_1 - C_{16}$ alkyl,

linear or branched $C_1 - C_{16}$ alkyl in combination with $C_1 - C_{18}$ aryl, or

$C_1 - C_{18}$ aryl;

B) peroxides of the formula



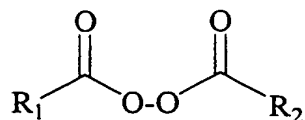
wherein R_1 and R_2 are identical or different and are one of the following radicals:

linear or branched $C_1 - C_{16}$ alkyl,

linear or branched $C_1 - C_{16}$ alkyl in combination with $C_1 - C_{18}$ aryl, or

$C_1 - C_{18}$ aryl;

C) peroxides of the formula



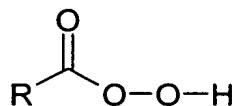
wherein R_1 and R_2 are identical or different and are one of the following radicals:

linear or branched $\text{C}_1 - \text{C}_{16}$ alkyl,

linear or branched $\text{C}_1 - \text{C}_{16}$ alkyl in combination with $\text{C}_1 - \text{C}_{18}$ aryl, or

$\text{C}_1 - \text{C}_{18}$ aryl;

D) peroxocarboxylic acids of the formula



wherein

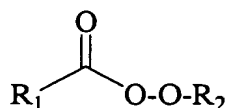
R is H or one of the following radicals:

linear or branched $\text{C}_1 - \text{C}_{16}$ alkyl,

linear or branched $\text{C}_1 - \text{C}_{16}$ alkyl in combination with $\text{C}_1 - \text{C}_{18}$ aryl, or

$\text{C}_1 - \text{C}_{18}$ aryl;

E) peroxocarboxylic esters of the formula



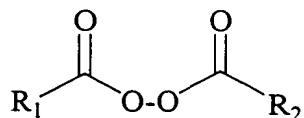
wherein R_1 and R_2 are identical or different and are one of the following radicals:

linear or branched $\text{C}_1 - \text{C}_{16}$ alkyl,

linear or branched $\text{C}_1 - \text{C}_{16}$ alkyl in combination with $\text{C}_1 - \text{C}_{18}$ aryl, or

$\text{C}_1 - \text{C}_{18}$ aryl; and

F) peroxodicarbonates of the formula



wherein R₁ and R₂ are identical or different and are one of the following radicals:

linear or branched C₁ – C₁₆ alkyl,

linear or branched C₁ – C₁₆ alkyl in combination with C₁ – C₁₈ aryl, or

C₁ – C₁₈ aryl.

15. The process according to claim 14, wherein said reacting proceeds at a temperature of from 0 to 130°C in the presence of one or more emulsifiers and one or more initiators.

16. The process according to claim 14, wherein said chain transfer agent is at least one peroxide selected from the group consisting of said hydroperoxides.

17. The process according to claim 16, wherein said peroxide is selected from the group consisting of tert-butyl hydroperoxide, cumyl hydroperoxide and mixtures thereof.

18. The process according to claim 14, wherein said peroxide is selected from the group consisting of di-tert-butyl peroxide, tert-butyl peroxybenzoate and tert-butyl peroxy-3,5,5-trimethylhexanoate.

19. The process according to claim 14, wherein component a) is styrene, component b) is butadiene and component c) is an ethylenically unsaturated carboxylic acid.

20. The process according to claim 14, wherein said peroxide is present in an amount of from 0.1 to 10% by weight.